



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

have been found at other localities, in the Lower Eocene. Among the most interesting of the peculiar forms the author mentions *Goniopygus pelasgiensis*, the last representative of a genus abundantly diffused in the various stages of the cretaceous; *Sismondia archiaci*, which d'Archiac had erroneously united with *Echinocyæus subcaudatus* of the tertiary of Antibes (Var), but which differs from that species in the constant position of its periproct and other characters; and *Gualtiera orbignyi*, a type remarkable for its ovoid, posteriorly truncated form, by the arrangement of its ambulacral areas, which are severed at two-thirds of their length by an internal fasciole, and above all, by the protuberances which surround the peristome, and are prolonged along the center of the posterior interambulacral area. For these strata echini predominate, and other fossils are represented only by a few mollusks.—Mr. Thomas has recently studied the terrestrial and lacustrine tertiary and quaternary beds of Algeria, and has established several horizons, well characterized by the numerous fossils contained in them. Mr. Thomas has found some new mollusks, but has given his attention principally to mammals and has enriched palæontology with many new species. Among these is a *Cynocephalus*, three species of antelope, and a hipparion, the bones of which were associated with those of the horse, instead of preceding it, as is the case in Europe. All these are from the Pliocene.

*Quaternary*.—In the quaternary of Algiers, Mr. Thomas has found numerous flint implements, and remains of various animals. These include a rhinoceros, which, to judge from a molar, is *R. tichorhinus*, *Bubalus antiquus*, the horns of which measured ten feet between the points; *Bos primigenius mauritanicus*, two antelopes, a sheep, a mouflon, a camel nearly related to the dromedary, and an ass (*Equus asinus atlanticus*), which, in its dentition, preserves some resemblance to *Hippotherium*.

#### MINERALOGY<sup>1</sup>.

AN INTERESTING MINERAL FROM CANADA.—The writer has given a preliminary notice of a very interesting mineral from Wakefield, Ontario, Canada. It occurs as white or grayish-white square crystals, sometimes an inch in breadth, and often glazed on the outside. They are nearly square prisms with truncated corners, the general appearance being that of a partly altered scapolite.

They are tetragonal, with  $O \wedge 2 = 129\frac{1}{2}^\circ$ . The angles, as pointed out to the author by Professor E. S. Dana, are closely similar to those of *sarcolite*, the following planes being identified: O, i-i, I. 2, 2-i, 2-2, 6-3, the last two hemihedral. The mineral

<sup>1</sup> Edited by Professor H. CARVILL LEWIS, Academy of Natural Sciences, Philadelphia, to whom communications, papers for review, etc., should be sent.

<sup>2</sup> Proceedings Mineralogical and Geol. Section, Acad. Nat. Sciences, Nov. 26, 1883.

appears to bear the same analogy to sarcolite that gehlenite does to meionite. The crystals are distinguished by an almost entire absence of cleavage. Hardness 5-6, spec. gravity 3.050-3.057. Luster vitreous to resinous. The composition, as determined by Mr. R. Haines, is as follows, the enclosed calcite being subtracted from the analysis:

| SiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | Fe <sub>2</sub> O <sub>3</sub> | CaO   | MgO | K <sub>2</sub> O | Na <sub>2</sub> O | P <sub>2</sub> O <sub>5</sub> | H <sub>2</sub> O |
|------------------|--------------------------------|--------------------------------|-------|-----|------------------|-------------------|-------------------------------|------------------|
| 36.74            | 19.79                          | 1.33                           | 38.16 | .77 | .17              | .32               | 2.49                          | .23 = 100        |

From this the quantivalent ratio of basis to silica is calculated as 9 : 6 or 3 : 2, thus placing the mineral among the subsilicates.

The mineral is insoluble or only partially soluble in acids, but gelatinizes with them after ignition.

Before the blowpipe it fuses at 3 with intumescence to a white glass. With the fluxes a slight reaction for iron is obtained.

A thin section examined under the microscope shows an admixture of calcite, which causes momentary effervescence when the mineral is placed in acid. The ground-mass is a gray amorphous, non-refracting substance resembling altered feldspar. Scattered through this are the unaltered crystalline fragments of a colorless, transparent tetragonal mineral, doubly refracting except in sections across the axis. The whole appearance resembles that of certain specimens of melilite, and shows alteration to have occurred throughout the whole of the crystals.

The microscopic characters are not those of a simple mineral. Dr. M. E. Wadsworth regards the colorless mineral (isotropic or tetragonal) as having replaced the gray amorphous substance, as though the latter had once occupied the entire space.

The crystals are imbedded in blue calcite, and are associated with pyroxene, graphite, cubical spinel (see below) and other minerals. They were given the author by Dr. A. E. Foote, who obtained them from the locality.

The species appears to be isomorphous with sarcolite, but its very different physical and chemical characters indicate either a distinct species or a pseudomorph. The absence of cleavage and the heterogeneous microscopic characters argue pseudomorphism. Chemically it is allied to gehlenite. The temporary name *cacoclasite*, referring to its imperfect cleavage, was suggested. The specimens are still under investigation.—*H. C. Lewis*.

**CUBIC SPINEL.**—Close to the locality where the above mineral was found, were cubes of a hard, dark mineral, the corners of which were truncated by small, brilliant, octahedral planes. The cubes were frequently an inch in diameter, and the cubic faces were striated and often curved, the edges also being convex. The polariscope showed that the mineral was isometric. Externally the crystals were nearly black, and were frequently covered with a film of iron oxide. Small fragments were transparent, and by transmitted light black or smoky sea-green or bluish-green color, rarely smoky amethystine. It scratched quartz, and as shown by

the following analysis, was evidently a true spinel of novel crystalline form :

| SiO <sub>2</sub> | FeO  | CaO  | MgO   | Al <sub>2</sub> O <sub>3</sub><br>(by difference) |       |
|------------------|------|------|-------|---------------------------------------------------|-------|
| 0.65             | 3.00 | 1.20 | 27.18 | 67.97                                             | = 100 |

—H. C. Lewis.

THE ORIGIN OF THE DIAMOND.—W. H. Hudleston<sup>1</sup> has advanced an extraordinary theory to account for the origin of the diamonds of South Africa. As is well known, the diamonds occur in a sort of soft, earthy breccia, made up of fragments of many kinds of rocks, and evidently of comparatively recent origin. A great part of the enclosed pebbles consist of basalt and other igneous rocks. Pieces of coaly matter and fossil shells also occur in the diamantiferous breccia, the matrix of which is a soft hydrated ferro-magnesian silicate. Dykes of dolerite, gabbro and other intrusive rocks form the walls of the diamond-bearing formation. The author believes that it is certain that the whole of the matrix *flowed upwards*, and that "it is impossible to doubt the *eruptive* character of the diamond rock." He thinks that superheated steam was the eruptive agent, and suggests the analogy of mud volcanoes.

Since no diamonds have been found except in this soft breccia, he suggests that the diamonds were formed in the breccia itself, having been formed at a considerable depth and then carried upward with "the rise of the viscous fluid in the pipe." The carbon is supposed to have been derived from certain carbonaceous shales, which were distilled under enormous pressure, when the carbon would have "no choice but to assume the crystalline form."

Certainly this theory requires more evidence than has yet been presented to support it.

URANTHORITE.—In 1876 Nordenskiöld found crystals of thorite at Arendal, Norway, having the form of zircon, and containing some ten per cent of protoxide of uranium. The same mineral was afterwards found by Lindström at Hitterö, Norway, and in 1880 an identical substance was found by Collier in the region of Lake Champlain, and called by him *uranothorite*, supposing it to be a distinct species.

Collier regarded the uranium as combined in the form U<sup>2</sup>O<sup>3</sup>, but as L. F. Nilson believes,<sup>2</sup> this was a mistake, the uranium existing as UO<sup>2</sup>. Now Zimmerman has proved that the uranium in the Norwegian thorite corresponds to UO<sup>2</sup>, and the thoria to ThO<sup>2</sup>, and that the two oxides replace one another in variable proportions. The mineral of Arendal is, therefore, but a variety rich in uranium of the thorite of Brevig, which was analyzed by Berzelius in 1829.

As the properties of the Lake Champlain mineral are identical with those of the Norwegian thorite, there is no reason for the name *uranothorite*.

<sup>1</sup> *Mineralogical Magazine*, Vol. v, No. 25, p. 199.

<sup>2</sup> *Ann. d. Chimie et Physique*, Nov. 1883, p. 429.

**TOPAZ IN NEVADITE FROM COLORADO.**—The “nevadite” of Chalk mountain, Colorado, is a porphyritic rock showing large glassy sanidine and many smoky quartz crystals imbedded in a grayish ground-mass, and is an eruptive rock, of probably early Tertiary age. Mr. W. Cross finds in certain druses very perfect crystals of colorless, transparent topaz. Although these crystals are very small ( $\frac{1}{2}$  to 3 millimeters in length), they are interesting on account of their occurrence in an eruptive rock, all previously known occurrences being in granite, gneiss or some other metamorphic rock. In the present case, as indicated by the associated minerals, the topaz may be a sublimation product.

**TELLUR-SULPHUR.**—There has long been recognized in Japan, as being distinct from ordinary sulphur, a full orange-red variety under the name of *seki-rin-seki* (massive red sulphur). This has been examined by E. Divers and T. Shimidzu,<sup>1</sup> who find that while it is allied to the selen-sulphur of the Lipari islands, Naples and Hawaii, it differs from it in composition, being a tellurium sulphur. Analysis yielded

| Te   | Se   | As   | Mo    | S (by diff.) |
|------|------|------|-------|--------------|
| 0.17 | 0.06 | 0.01 | trace | 99.76        |

When the tellurium sulphur was treated with carbon bisulphide, the arsenic remained as sulphide. This red sulphur appears to occur at all the deposits of volcanic sulphur in Japan, having been found at a number of localities. It contrasts strikingly with the associated yellow sulphur. It would be of interest could the chemical state of the tellurium be determined. Meanwhile the mineral may be regarded as a variety of sulphur, and might be known as *tellur-sulphur*.

**AMERICAN GEMS.**—Some very beautiful tourmalines, of varying shades of color and of unusually perfect crystalline form, have been recently found at Auburn, Maine. The colors are pale shades of blue, green and pink, all these shades often present in the same crystal. Mr. W. E. Hidden describes their crystallographic form, which is of unusual interest. A number of other minerals occur at the same locality, which promises to be of financial importance regarding the production of material for gems.

A new locality for emeralds has been found in North Carolina, about a mile south-west of the locality now worked at Stacy point. The crystals are pale-green, and occur in decomposed black mica, associated with quartz, rutile and hiddenite. Mr. J. F. Kunz states that this new locality shows that the deposit of emeralds in North Carolina is not an accidental one, and that there is encouragement for future exploration for gems in that State.

**MINERALOGICAL NOTES.**—During the year 1883 *sixty millions of pounds of copper* were extracted from the Lake Superior mines. —*Ozokerite* has been found in the Island Tschelken in the

<sup>1</sup> *Chem. News*, Dec. 21, 1883.

Caspian sea. It is a brownish-black, sticky mass, almost entirely soluble in boiling benzine. On extracting it with ether, a hard residue remains, which contains a paraffine whose melting point is  $79^{\circ}$ , and sp. gr. 0.939. This paraffine forms lustrous crystals and is very stable. It has been named *leken*.—*Celestite* has been found in three localities in Kansas, as announced by W. Knaus in the *Kansas City Review*.—A remarkably fine group of Japanese *stibnite* crystals has been recently purchased for the British Museum. The group consists of 120 crystals from one-half to two and a-half inches wide and thirteen inches long, the whole weighing 150 lbs.—Lippitt has found a native ferrous and aluminum sulphate from Mexico, which was a compact mass of flexible fibers resembling asbestos, of a greenish-white color and silky luster, with a hardness of 2 and spec. grav. 1.89. It was soluble in water, and analysis indicated that it corresponded to a mixture of two molecules of halotrichite and one of melanterite. The iron was all in the ferrous condition.—*Vivianite* occurs in brilliant, dark-blue crystals in the cavities of human bones taken out of a supposed Roman well near the pyrites mines of Rio Tinto, Sierra Morena.—Professor M. F. Heddle has found *topaz* associated with thorite, magnetite, amazon-stones, etc., in the syenite of Ben Loyal, Sutherland, Scotland.—*Idocrase* of a greenish-yellow color, and of unusually interesting crystallographic form, occurs at Kedabék, in the Caucasus, according to O. Korn. It has been shown by Jannasch that the idocrase from Vesuvius, Norway and elsewhere contains one per cent or more of fluorine.

#### BOTANY.<sup>1</sup>

GLANDS ON A GRASS.—In the latter part of August, 1883, while collecting various plants, my attention was attracted by some minute insects which appeared to be held fast to parts of the slender pedicels of one of our drop-seed grasses (*Sporobolus heterolepis*). An examination, by means of a hand-lens, showed these unfortunate insects to be adhering to small, dark-colored glistening swellings of the pedicels. Further examination showed these swellings upon most of the pedicels, and their slight stickiness to the touch quickly suggested their glandular nature. They were accordingly taken to the laboratory and carefully studied.

Upon making a cross-section of the swelling, the glandular tissue (*a*) was found to be disposed upon two sides of the section, with green tissue (*b*), and the fibrovascular bundles (*c d d*) and their accompanying masses of fibrous tissue (*e e*) occupying the remaining and interior parts, as shown in Fig. 1, of the accompanying camera sketches.

A higher power of the microscope showed the glandular tissue

<sup>1</sup> Edited by PROF. C. E. BESSEY, Ames, Iowa.